

CHAPTER 1

PURPOSE & NEED

CHAPTER SUMMARY: Two of Kodiak Airport's three runways do not meet the Federal Aviation Administration's (FAA) standards for Runway Safety Areas (RSAs), areas that reduce the potential for injury or property damage if an aircraft overruns, undershoots, or veers off of a runway. The purpose of this project is to improve the RSAs to meet the FAA's standards to the extent practicable by the statutory deadline of December 31, 2015.

Chapter One of this Draft Environmental Impact Statement (Draft EIS) describes the ***purpose of and need for actions to improve RSAs at Kodiak Airport.***

1.1

Kodiak Airport Setting and History

Kodiak Island is located in the southwest portion of the State of Alaska, approximately 225 miles southwest of Anchorage and 1,240 miles northwest of Seattle, Washington. The Island, with high mountains and a long, uneven coastline encompassing almost 3,600 square miles, is the largest in an extensive group of islands known as the Kodiak Archipelago. As is described later in this chapter, the mountainous terrain of Kodiak Island creates challenging airspace conditions for pilots and influences the aviation procedures used for both commercial and military operations.

The Island is part of the Kodiak Island Borough, which includes the City of Kodiak, seven villages, and a U.S. Coast Guard Base. In 2010, the Borough had a population of 13,592 while Kodiak, the largest city in the Borough, had approximately 6,130 people (U.S. Census 2010). There are two airports serving the city, including the Municipal Airport close to downtown, and the so-called State Airport (referred to in this EIS as the “Kodiak Airport”) located about seven miles southwest of downtown. There are also facilities for floatplanes at Lily Lake, adjacent to the Municipal Airport, and at Trident Seaplane Base east of town. This EIS addresses RSA needs at the larger Kodiak Airport (see **Figure 1-1**).

***Purpose and Need**
identifies the problem
facing the proponent
(**need**) and the
proposed solution
(**purpose**).*

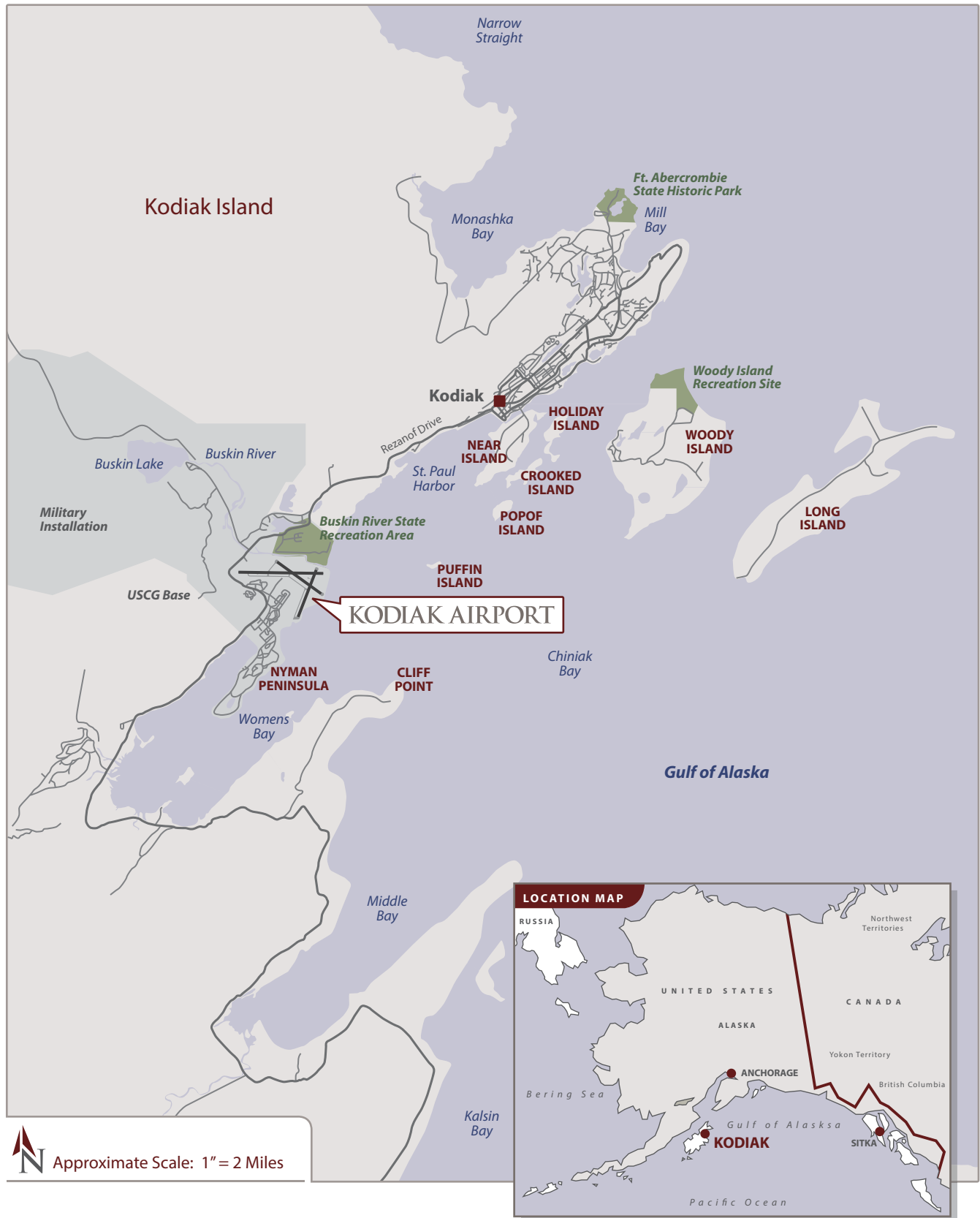


Figure 1-1 Airport Location/Vicinity Map

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The Kodiak Airport was first constructed by the U.S. Navy in 1940 as a military airfield. In 1972, the Navy transferred the facility to the Coast Guard and, combined with the issuance of Public Land Order 5550 in 1975, more than 20,000 acres of land, tideland, and submerged land of Kodiak Island that had been reserved from the public domain for the Navy were transferred to the Coast Guard.



About 618 acres of land within the airfield, including runways, taxiways, and the terminal area, were leased to the State of Alaska for use as a civilian airport. As leaseholder, the Alaska Department of Transportation and Public Facilities (ADOT&PF) is responsible for operation and maintenance of the Airport. The terms of the lease allow ADOT&PF to use the premises for commercial purposes in order to fund the cost of operating and maintaining the Airport. Kodiak Airport also continues to be used for Coast Guard and other transient military operations in association with the adjacent Coast Guard Base. In summary, Kodiak Airport is wholly owned by the United States federal government, leased by the State of Alaska and operated by ADOT&PF, and used for civil and military aviation.

Kodiak Airport has three runways:

- **Runway 07/25** is the longest at 7,542 feet and is used by commercial and military aircraft and has a generally east-west orientation.
- **Runway 11/29** is 5,399 feet in length and, because of the mountainous terrain inland of this runway, is normally used only by smaller general aviation aircraft; it has a generally northwest-southeast orientation.
- **Runway 18/36** is the shortest of the three runways, at 5,013 feet, but the runway alignment and generally favorable terrain allow it to be used by both commercial and military aircraft; it has a generally north-south orientation.

1.2

Runway Use: Takeoffs and Landings

Air traffic control tower staff estimates that about half of the aircraft activity at Kodiak Airport takes place on Runway 07/25, which has an almost east-west orientation. Of the remaining operations, slightly more take place on the north-south runway, Runway 18/36 (~28%) than on the northwest-southeast trending Runway 11/29 (~22%).

Mountainous terrain near the Airport, including Barometer Mountain, affects activity and generally prevents takeoffs to the west or landings from the west.

Because aircraft normally take off and land into the wind, the degree of runway use generally reflects prevailing wind directions. However, due to mountainous terrain west of the Airport, activity on Runway 07/25 is restricted: aircraft generally take off to the east, toward Chiniak Bay, on Runway 07 and land on Runway 25, having approached over Chiniak Bay from the east. Some approaches to Runway 07 (i.e., landings from the

west) and departures from Runway 25 (i.e., takeoffs to the west) do occur, but these are almost always limited to small general aviation aircraft operated by local pilots that are familiar with the surrounding terrain.

Runway use information was obtained from several of the commercial passenger and cargo operators, including Alaska Airlines, Era Aviation, the Airport Traffic Control Tower, as well as the Coast Guard. Alaska Airlines stated that 99% of its takeoffs are conducted on Runway 07 and 90% of its landings are conducted on Runway 25. For comparison, Era Aviation stated that 80% of its takeoffs are conducted on Runway 07 and 75% of its arrivals are conducted on Runway 25. The Coast Guard estimates that about 80% of their annual operations take place on Runway 07/25. From these numbers it is easy to understand why Runway 07/25 has been designated the “Primary Use” runway at Kodiak Airport. Runway 07/25 not only accommodates about as many annual operations as the other two runways combined, a large majority of the “large” aircraft operations take place on it as well.

Runway 18/36 is the designated “crosswind” runway at Kodiak Airport, meaning that it serves to accommodate aircraft operations when the winds are not favorable for takeoffs or landings on the primary use runway (07/25). This runway is used by commercial service, Coast Guard, and general aviation aircraft. Alaska Airlines estimates that five percent of its landings are conducted on Runway 36 and less than 1% of their operations occur on Runway 18.

Era Airlines uses Runway 36 approximately 17% of the time for arrivals and departures annually and Runway 18 for 5% of their operations. The Coast Guard uses Runway 36 for approximately 15% of their annual operations and Runway 18 for another 5%. Runway 11/29 is designated as the general aviation runway at the Airport, and it is used primarily by smaller general aviation aircraft with only occasional use by larger aircraft. **Figure 1-2** illustrates the three runways, and other airport and Coast Guard facilities.



Three Kodiak Airport Runways

Runway 07/25: Primary Runway

Runway 18/36: Crosswind Runway (when winds are not favorable for the primary runway)

Runway 11/29: General Aviation Runway (generally for smaller aircraft)

1.3

Runway Safety Areas

The Federal Aviation Administration (FAA) has determined that designated safety areas for Runway 18/36 and Runway 07/25 at Kodiak Airport do not meet federal standards. **Figure 1-2** illustrates the existing dimensional criteria for the RSAs, as well as the general airport layout and facilities. These standards are based in large part on the types of aircraft using a runway and, more specifically, the size of those aircraft and speeds at which they approach the runway. The extent to which these aircraft use the runways at Kodiak Airport, explained in the previous section, is also important to determine the appropriate standard. This section of Chapter One explains what a runway safety area (RSA) is and why it is important to aviation safety. It also provides an overview of the aircraft using Kodiak Airport, with emphasis on the largest and heaviest aircraft regularly using each runway. This information is used to document the need for improved RSAs and explain the purpose of this proposed project.

A Runway Safety Area (RSA) acts as a buffer for aircraft between the runway and other hazards, such as the ocean.

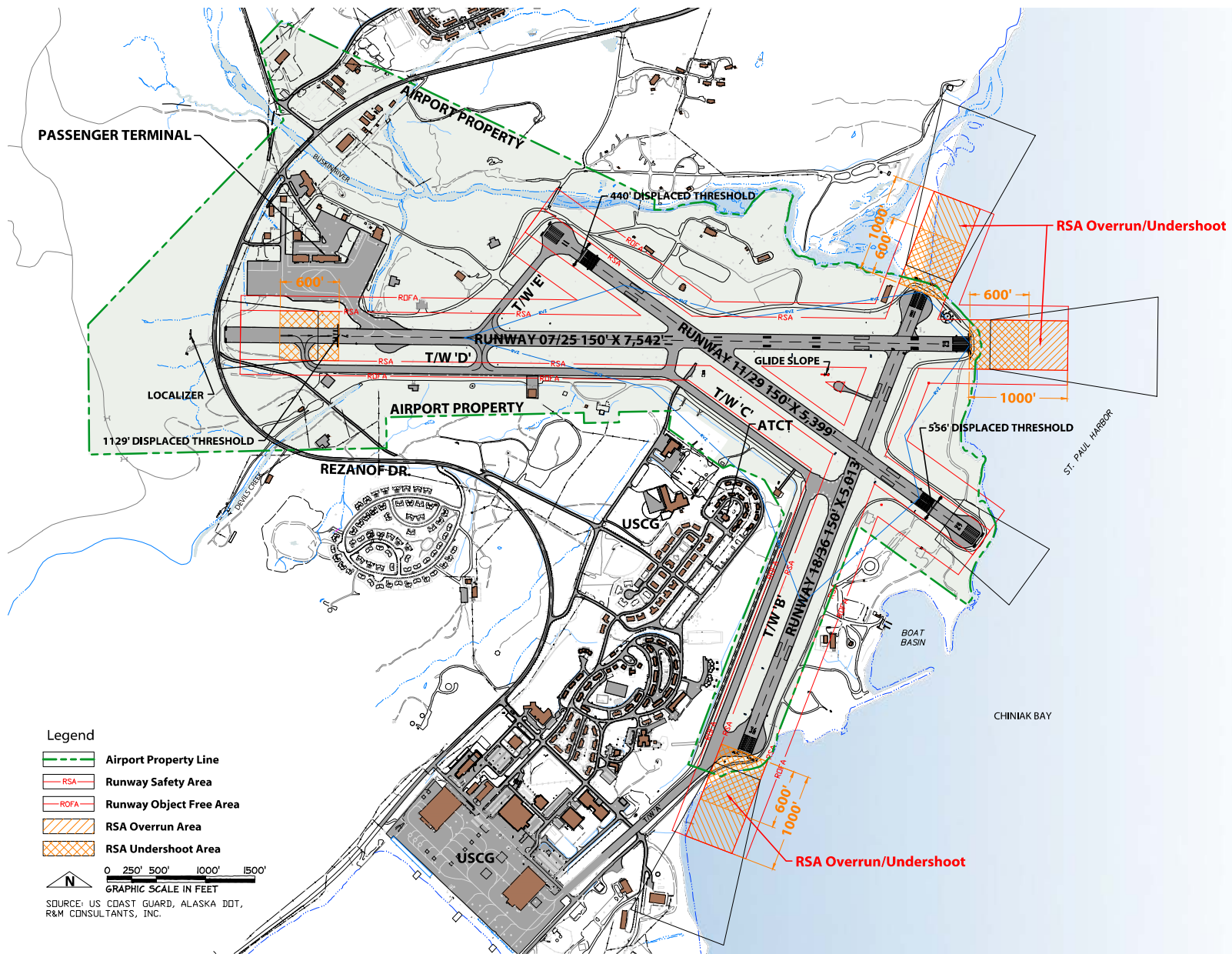


Figure 1-2
Existing Airport Dimensional Criteria

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FAA determined that due to barriers and limitations at Kodiak Airport, the Airport should meet the FAA standards for the amount of RSA needed for each runway to the extent practicable.

An RSA is a “defined surface surrounding a runway prepared or suitable for reducing the risk of damage to airplanes in the event of an undershoot, overshoot, or other excursion from the runway” (FAA 1989). The RSA must be capable, under normal (dry) conditions, of supporting aircraft that overrun the runway without causing structural damage to the aircraft or injury to its occupants. An RSA is found at either end

of a runway, for undershoot and overshoot protection, and along the runway sides in case an aircraft veers off during landing or takeoff. RSAs make airports and flying safer, and reduce the potential for aircraft damage or injuries if a landing or takeoff has problems. RSAs also make it easier to get firefighting and rescue personnel and equipment to the scene of an accident.

1.4

Project Purpose and Need

Public Law 109-115 states that not later than December 31, 2015, the owner or operator of an airport certificated under 49 U.S.C. 44706 (such as the Kodiak Airport) shall improve the airport's RSAs to comply with the FAA design standards required by 14 Code of Federal Regulations part 139 (119 Stat. 2401 Nov. 30, 2005). Those standards are contained in the FAA Advisory Circular 150/5300-13. The next three paragraphs describe the extent of RSA shortcoming on two of the runways at Kodiak Airport.

The minimum size for a particular RSA (known as the Design Standard) can vary depending on the type of aircraft expected to use the runway and, generally speaking, the largest and heaviest aircraft regularly operating on a runway dictates the RSA size. The FAA reviewed current and recent aircraft operational data for the Kodiak Airport and identified the Boeing 737-400 (which is operated by Alaska Airlines) as the "Design Aircraft" for Runways 07/25 and 18/36. The Boeing 737-400 falls within the wingspan category of Group III and approach category of C.¹

¹ All of the B737-series aircraft using or potentially using Kodiak Airport, such as the B737-200 or newer -700/800/900, fall within the same design categories and would require the same RSA dimensions.

The RSA design standard for this classification of aircraft at the runway ends is a 600-foot undershoot protection and 1,000 feet of overrun protection, with 250 feet of protection along each side of the runway centerline or 500-feet wide. Because the design aircraft could land and takeoff on either runway end, the RSA dimension for each of these runways can more simply be described as a 500-foot wide rectangular area centered upon the runway and extending 1,000 feet beyond each runway end.

Two of the three runways at Kodiak Airport have RSAs that are too small for the types of aircraft using them.

While RSA design standards are based on the largest and heaviest aircraft regularly operating on a runway, other smaller aircraft use the Kodiak Airport and do not require the same RSA areas. For example, smaller commercial aircraft, such as the De Havilland Dash 8 aircraft operated by ERA Airlines, require an RSA that is 300 feet wide and extends 600 feet beyond the ends of the runway. The RSA in place around Runway 11/29 meets the design standards for these smaller commercial and larger general aviation aircraft.

The RSAs for the following runways do not meet FAA standards for overrun protection:

- **Runway 07**
- **Runway 25**
- **Runway 18**
- **Runway 36**

The RSAs for the following runways do not meet FAA standards for undershoot protection:

- **Runway 25**
- **Runway 18**
- **Runway 36**

In sum, this project is needed because the RSAs around Runway 07/25 and Runway 18/36 at Kodiak Airport do not meet the FAA's standards, which Congress has directed be met by December 31, 2015.

The purpose of this project is to improve the RSAs for these runways to meet the FAA's standards to the extent practicable by that statutory deadline.

1.5

Required Actions, Funding and Timeframe

This section identifies the actions required to gain approval for and construct RSA improvements at Kodiak Airport. It also provides an estimate of the cost of the proposed project, and the time required to begin and complete construction.

The Kodiak Airport lands and facilities are owned by U.S. Coast Guard (USCG) and leased to the Alaska Department of Transportation and Public Facilities (ADOT&PF). Construction of the proposed project would take place on land managed by the USCG, although Runway Safety Area (RSA) improvements would occur outside of the current airport lease boundaries. Where projects extend beyond the lands leased by ADOT&PF, the current lease would need to be amended prior to construction. Proposed project would involve fill into submerged lands that are a part of the Alaska Maritime National Wildlife Refuge. The submerged refuge lands are under USCG administration with the U.S. Fish and Wildlife Service (USFWS) having secondary jurisdiction.

At the initiation of the project, the FAA entered into cooperating agency agreements with agencies having special expertise regarding environmental resources and having jurisdiction by law over a resource or activity associated with this Federal action. Cooperating agencies for this project include the USCG, U.S. Army Corps of Engineers, and the National Oceanic and Atmospheric Administration Fisheries Service. The FAA is also working closely with other federal and state agencies with expertise and jurisdiction for resources potentially affected by the proposed project. In addition to cooperating agency agreements, the FAA has offered and initiated formal consultation with federally recognized tribal organizations having interest in the project.

1.5.1

Required Actions

FAA approval and funding of specific RSA improvements at Kodiak Airport would require a number of FAA actions, including:

- A determination under 14 C.F.R. Part 157 (*Notice of Construction, Alteration, Activation and Deactivation of Airports*) and 49 U.S.C. 40113(a) as to whether or not the FAA objects to the development proposal from an airspace perspective, based on aeronautical studies.

Federal, state and local actions required prior to construction are described in the Necessary Project Findings and Approvals Appendix.

- A determination, through the aeronautical study process, under 14 C.F.R. 77 (*Objects Affecting Navigable Airspace*) and 49 U.S.C. 40103(b) and 40113 regarding obstructions to navigable airspace.
- Decisions regarding project eligibility for federal grant-in-aid funds under 49 U.S.C. 47101, et seq.
- FAA approval of the Airport Layout Plan².
- FAA authorization for the approved actions in a Record of Decision (ROD)³.
- Possible approval of an amendment to the Airport's Certification Manual per 14 C.F.R.139 (*Airport Rescue and Firefighting Requirements*) and 49 U.S.C. 44502(b).
- FAA approval for any relocation or upgrade of existing navigational aids per 49 U.S.C. 44502(a)(1).

Among the actions expected by the USCG, as a cooperating agency to occur in the normal course of implementing the proposed project include:

- Comply with ANILCA Title XI and 43 CFR 36.1 requirements as a reviewing agency.
- Negotiate and approve terms for a new Airport lease with ADOT&PF.
- Negotiate and approve terms for a new Operating Agreement with ADOT&PF.
- Negotiate and approve terms for access to USCG Base for construction operation.
- Negotiate and approve terms for access to barge piers in Womens Bay for construction operations.

In addition, a number of other federal, state, and local actions would be required before construction could begin. See the **Necessary Project Findings and Approvals Appendix**. It is expected that other actions will be identified through comment on the Draft EIS, additional interagency consultation, and during project design.

² An Airport Layout Plan is a scaled drawing of existing and proposed land and facilities needed for the operation and development of an airport.

³ A Record of Decision (ROD) is the formal decision document for an environmental document which is recorded for the public.

1.5.2

Cost and Funding

Recognizing that there are always limits to the amount of money available for projects, and that project costs may differ depending on the type and extent of safety improvements needed, the FAA has developed guidance that helps to define the

maximum feasible cost for RSA projects (FAA 2004). Using this guidance, and considering local and regional factors, the FAA has determined that the maximum feasible cost of RSA improvements for Kodiak Airport is approximately \$25 million for Runway 07/25 and approximately \$25 million for Runway 18/36.

There is a maximum feasible cost of \$25 million per runway for RSA improvements at Kodiak Airport.

The RSA improvements would be completed using a combination of state and federal funding. Federal funding, using the FAA's Aviation Trust Fund, comes primarily from a nationwide airline passenger ticket tax.

1.5.3

Schedule for RSA Improvements

Construction of the proposed project would take approximately two years. If the FAA approves the RSA project in 2013, major construction activities would probably begin in 2014 and be completed in 2015. A number of factors would influence the construction start time. Permits may include restrictions of various types that would dictate when construction could occur and for how long. For instance, stipulations could be imposed to protect natural resources, such as seasonal prohibitions to protect wildlife species of concern. The construction work would also be designed to minimize impacts on commercial and military aircraft operations.

1.6

Public Notification and Issue Identification (Scoping)

On February 15, 2007 the FAA published in the Federal Register a Notice of Intent to prepare the EIS and to initiate the "scoping" process, which included a public scoping meeting and agency scoping meetings. The public scoping meeting was conducted March 28, 2007 in Kodiak. The FAA held agency, tribal, and stakeholder scoping meetings on March 27 in Anchorage and March 28, 2007 in Kodiak.

Scoping is the process used by the FAA to request input – from the public, agencies, tribes and others – on the issues relating to the proposed action. These may include possible environmental impacts to resources that are particularly sensitive and other highly controversial issues, as well as ideas for alternatives that may meet the project need while offering advantages the proposed action does not include. The **Project Coordination Appendix** in the DEIS includes the scoping comments and input received throughout the DEIS process.

Scoping comments generally focused on the potential for the Build Alternatives to affect natural resources in the vicinity of the Airport and their importance to natural, commercial, subsistence, and recreational uses. The comments received helped to identify areas of concern and controversy, which helped to guide the environmental analysis contained within the DEIS, as well as helping to direct the alternatives examined in detail. Comments included the following:

- Concerns over natural resources and recreation near the Buskin River
- Access to subsistence resources
- Effect on subsistence resources
- Effect on cultural/traditional practices
- Effect on the Buskin River itself
- Effect on threatened, endangered, and sensitive species
- Socioeconomic effects

Based on these comments, the following items were included in the DEIS to help focus the analysis on important resources and areas of concern:

- Modeling of the Buskin River, freshwater plume and marine currents
- Extensive biological surveys for marine and terrestrial areas
- Historic surveys of the area
- Close tribal coordination on cultural/traditional issues and subsistence

Additionally, development and analysis of alternatives took into account the added value of the Buskin River. As described below in the Alternatives section, the FAA examined alternatives that avoided this resource when able, and focused on alternatives that would maximize safety while minimizing impacts on the environment.

The DEIS process has included extensive public and agency coordination. Comments have been documented and incorporated into the analysis and decision-making process.

References:

- ADOT&PF. *Kodiak Airport Master Plan – AKSAS Project No. 54009*. (Prepared for ADOT&PF by HDR Alaska, Inc. January 2004).
- FAA. *Airport Design*. (FAA September 29, 1989).
- FAA. *Runway Safety Area Program*. (FAA, October 1, 1999).
- FAA. *Financial Feasibility and Equivalency of Runway Safety Area Improvements and Engineered Materials Arresting Systems*. (FAA Order 5200.9. March 15, 2004).
- U.S. Census, American Community Survey and 2010 Census, www.census.gov, 2010.